

- B1
Sub C
- b) a polyisocyanate,
 - c) a blowing agent comprising
 - 1) from about 5 to about 50 parts by weight of a C₃ and/or C₄ alkane
 - 2) from about 50 to about 95 parts by weight of cyclopentane, and optionally
 - d) auxiliary additives.

B2

20. (Amended) The [process] blowing agent composition of Claim 19 in which a) is n-butane and/or isobutane.

Please add the following new Claims 22-23:

B3

-- 22. The blowing agent composition of Claim 19 in which from 10 to 20 parts by weight of n-butane are present.

23. The blowing agent composition of Claim 19 in which about 15 parts by weight of isobutane are present. --

REMARKS

Claims 16 and 17 have been cancelled. The subject matter of these cancelled claims has been incorporated into Claim 11 as amended herein.

Claim 20 has been amended to make it consistent with Claim 19 from which Claim 20 depends.

New Claims 22 and 23 are directed to blowing agent compositions containing the amounts of n-butane (Claim 22) and isobutane (Claim 23) illustrated in Examples 2-3 (n-butane) and 4 (isobutane).

The present invention relates to a process for the production of rigid polyurethane foams in which from about 5 to about 80 parts by weight of an aromatic amine initiated polyol is reacted with a polyisocyanate in the presence of a blowing agent composition that includes from about 5 to about 50 parts by weight of a C₃ and/or C₄ alkane and from about 50 to about 95 parts by weight of cyclopentane.

The present invention is also directed to the blowing agent composition used in this process and to the foams produced by this process.

Claims 11-20 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over WO patent no. 94/25514, of record.

Applicants believe that their invention as presently claimed in the claims as amended herein and new Claims 22-23 are patentable over the De Vos et al reference.

More specifically, DeVos et al is directed to a process for making rigid polyurethane foams in which cyclopentane is used in combination with another co-blowing agent to produce a foam having improved dimensional stability and thermal insulation properties. DeVos et al requires a co-blowing agent which satisfies a given equation. A number of "suitable" co-blowing agents are mentioned. These co-blowing agents include (cyclo)alkanes, hydrofluorocarbons, hydrochlorofluorocarbons, fluorocarbons, fluorinated ethers, alkenes, alkynes and noble gases. Isopentane, n-pentane and HFC-134a are taught to be the preferred co-blowing agents.

DeVos et al also teaches that any of the known isocyanate-reactive compositions may be used to produce the foams described therein.

Applicants' claimed invention is distinguishable from the process disclosed by DeVos et al in that: 1) Applicants' blowing agent composition must include from 5 to 50 parts by weight of a C₃ and/or C₄ alkane whereas any blowing agent satisfying the DeVos et al formula may be used in the reference process; and 2) Applicants' process requires an amine-initiated polyol whereas DeVos et al teaches that any of the known isocyanate-reactive compositions may be used in the practice of the reference process.

Applicants' claimed blowing agent composition and the foams produced from that blowing agent composition are distinguishable from the blowing agent compositions and foams disclosed by DeVos et al in

that Applicants' blowing agent must include a C₃ and/or C₄ alkane whereas many different types of compounds as taught to be suitable co-blowing agents for the reference process.

One skilled in the art reading the DeVos et al disclosure would therefore need to pick and choose from the many materials taught to be useful for the reference process in order to "arrive at" Applicants' claimed invention. Since DeVos et al does not include a single teaching that would lead the skilled artisan to select the C₃ and/or C₄ alkanes from the many other co-blowing agents disclosed therein, DeVos et al does not disclose the claimed invention with the specificity necessary to support a rejection under 35 U.S.C. § 102(b). Withdrawal of this rejection is therefore requested.

The significance of using a C₃ and/or C₄ co-blowing agent with cyclopentane and an amine-initiated polyol is evident from Applicants' Examples. These Examples illustrate that the combination of an amine-initiated polyol with the cyclopentane and C₃ and/or C₄ blowing agent composition produces foams having the advantageous thermal conductivity of foams produced with cyclopentane alone **in addition to** improved compressive strength.

DeVos et al does not teach or suggest that selection of an amine-initiated polyol and the blowing agent composition required in Applicants' invention would result in the production of a foam having this desirable combination of properties. Nor could one skilled in the art possibly predict that these particular polyols and blowing agent compositions would produce a foam with this combination of properties because DeVos et al does not even mention compression strength.

The teachings of DeVos et al can not therefore be construed in any manner which would render the claimed invention obvious.

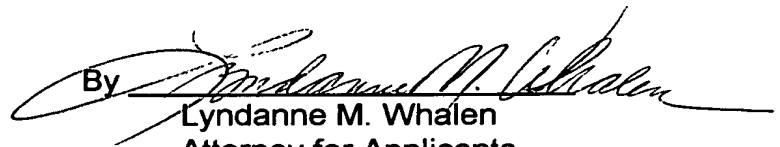
Withdrawal of this rejection is therefore requested.

In view of the above amendment and remarks, reconsideration of Claims 11-15 and 18-21 and allowance of Claims 11-15 and 18-23 are respectfully requested.

Respectfully submitted,

KARL W. DIETRICH
NORBERT EISEN
GERHARD HEILIG

By



Lyndanne M. Whalen
Attorney for Applicants
Reg. No. 29,457

Bayer Corporation
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
(412) 777-2347
FACSIMILE PHONE NUMBER:
(412) 777-5449

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